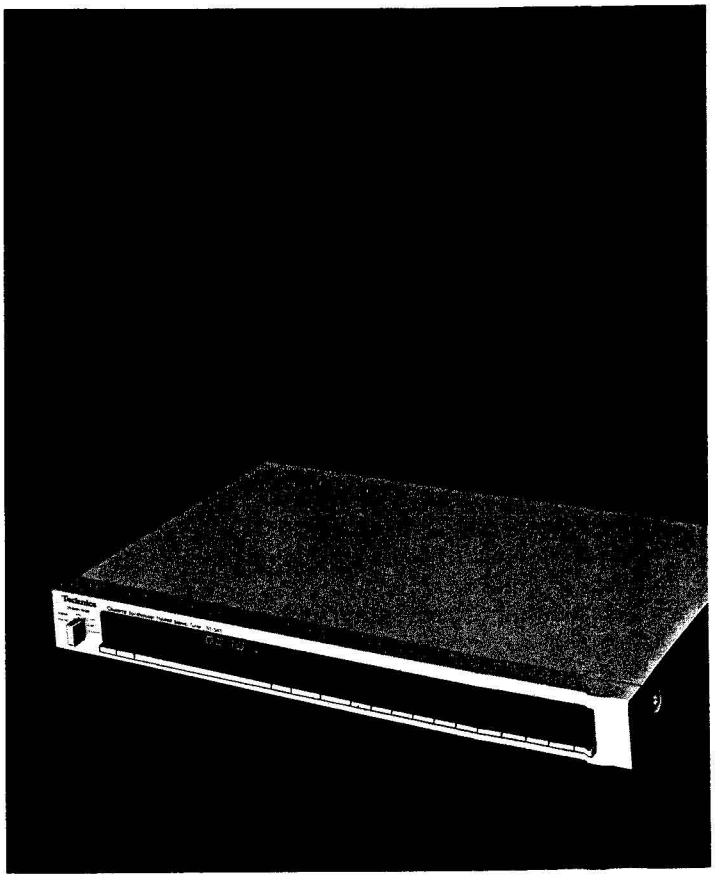
Technics

QUARTZ Synthesizer
FM/AM Stereo Tuner

ST-S4T

OPERATING INSTRUCTIONS



• Also available in black.

Before operating this unit, please read these instructions completely.

ENGLISH

Dear Stereo Fan

We want to thank you for selecting this product and to welcome you to the growing family of satisfied Technics product owners around the world.
We feel certain you will get maximum enjoyment from this new addition to your home.
Please read these operating instructions carefully, and be sure to keep them handy for convenient reference.

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BEFORE USING THIS UNIT

Use a minus (−) screwdriver to set the voltage selector (on the bottom panel) to the voltage setting for the area in which the unit will be used.
Note that this unit will be seriously damaged if this setting is not made correctly. (There is no voltage selector for some countries; the correct voltage is already set.)

FOR UNITED KINGDOM

Warning
THIS APPARATUS MUST BE EARTHED.
Important
THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE.

GREEN AND YELLOW:	EARTH
BLUE:	NEUTRAL
BROWN:	LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows. The wire which is coloured GREEN-and-YELLOW must be connected to the terminal in the plug which is marked with the letter E or by the safety earth symbol ⏚ or coloured GREEN or GREEN-and-YELLOW.
The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.
The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

MAINTENANCE OF EXTERNAL SURFACES

To clean, use a soft dry cloth.
If the surfaces are extremely dirty, use a soft cloth, dipped into a soap and water solution or a weak detergent solution.
Wring the cloth well before wiping the unit.
Wipe once again with a soft dry cloth.
Never use alcohol, paint thinner, or benzine, nor a chemically treated cloth to clean this unit.
Such chemicals may damage the finish of your unit.

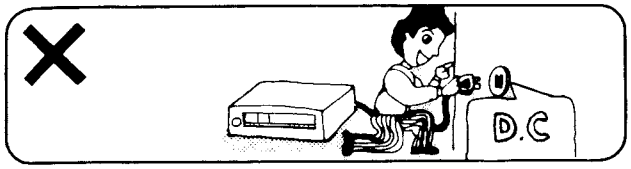
ACCESSORIES

- FM indoor antenna (feeder antenna) 1
- Stereo pin-type cord 1

FOR SAFE USE OF THIS UNIT

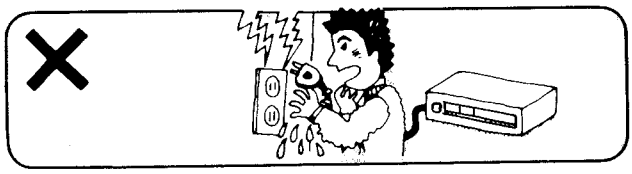
■ Use an ordinary household AC power source

1. **Use from an AC power source of high voltage, such as for air conditioners, is very dangerous.**
   Be extremely careful not to make a connection to the electrical outlet for a large air conditioner or central-heating unit which uses high voltage, because there is the possibility of fire.
2. **A DC power source cannot be used.**
   Be sure to check the power source carefully, especially on a ship or other place where DC is used.



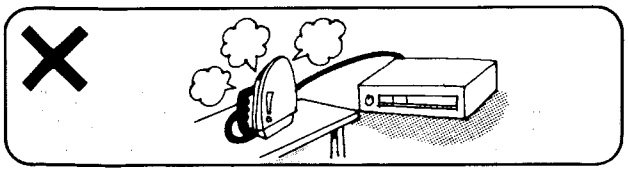
■ Connection and disconnection of the power cord plug

1. **Wet hands are dangerous.**
   A dangerous electric shock may result if the plug is touched by wet hands.
2. **Don't pull the power cord.**
   Always grasp the plug; never pull the cord itself.



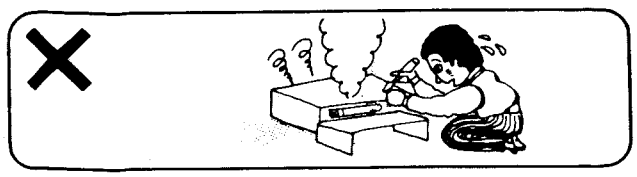
■ AC outlet on rear panel

1. **Any equipment connected here should have specified power consumption or less.**
   This outlet is exclusively for the connection of other audio equipment, such as a tape deck. Be sure the power consumption does not exceed the wattage specified near the AC outlet.
2. **Never connect other electrical appliances, such as an iron or toaster.**
   If appliances with a large power consumption are connected, an unexpected accident might occur as a result of overheating.



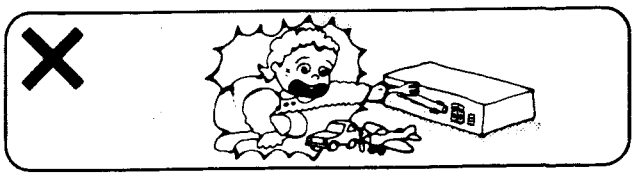
■ Never attempt to repair or reconstruct this unit

A serious electric shock might occur if this unit is repaired, disassembled or reconstructed by unauthorized persons, or if the internal parts are accidently touched.



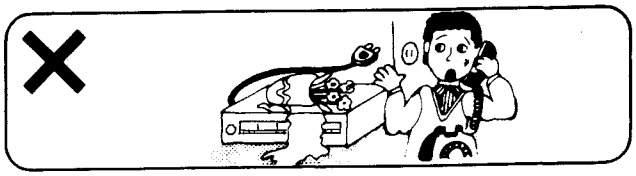
■ For families with children

Never permit children to put anything, especially metal, inside this unit. A serious electric shock or malfunction could occur if articles such as coins, needles, screwdrivers, etc. are inserted through the ventilation holes, etc. of this unit.



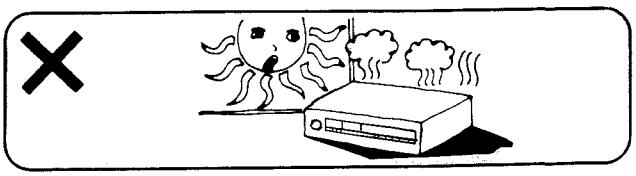
■ If water is spilled on the unit

Be extremely careful if water is spilled on the unit, because a fire or serious electric shock might occur. Immediately disconnect the power cord plug, and consult with your dealer.



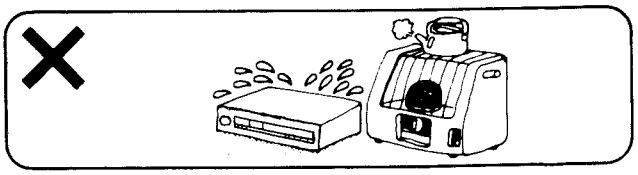
■ Place the unit where it will be well ventilated, and away from direct sunlight

Place this unit at least 10 cm (4") away from wall surfaces, etc., and away from direct sunlight.



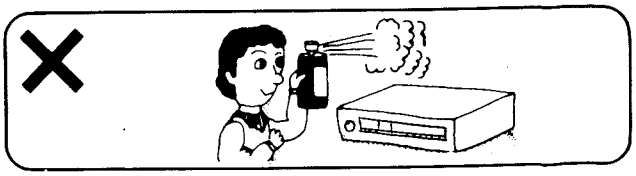
■ Keep the unit away from stoves, etc.

Heat can damage the external surfaces as well as internal circuits and components.



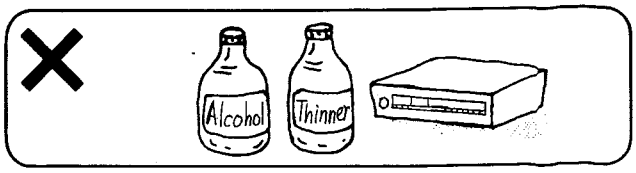
■ Avoid spray-type insecticides

Insecticides might cause cracks or "cloudiness" in the cabinet and plastic parts of this unit. The gas used in such sprays might, moreover, be ignited suddenly.



■ Never use alcohol or paint thinner

These and similar chemicals should never be used, because they may damage the finish.



■ If trouble occurs

If, during operation, the sound is interrupted or lamps no longer illuminate, or if abnormal odor or smoke is detected, immediately disconnect the power cord plug, and contact your dealer or an Authorized Service Center.

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BATTERIES (option): THEIR USE AND INSERTION/ REMOVAL

Before using this unit, be sure to insert the batteries [size AA (UM-3) 1.5V] as described below.
The batteries serve as an auxiliary power source (for the preset tuning*1, the "most-recent" memory*2, and the timer settings*3) in the event of an interruption of the ordinary (AC) power source.
When the AC power cord is connected to an electrical outlet, these batteries are not being used, because they are not needed; they are used only if the power cord is disconnected or the power is interrupted for any other reason (such as a power failure).

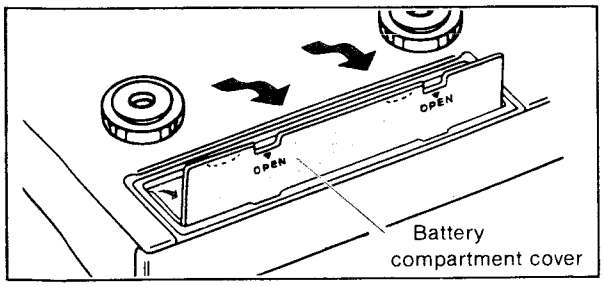
***1. Preset tuning**
The preset tuning is a system by which any desired broadcast station which has been preset by using one of the preset tuning buttons ④ can be tuned by simply touching one button.

***2. Most-recent memory**
The most-recent memory is a system by which the unit "remembers" the FM or AM broadcast station last heard when any of the functions (except the clock/timer) of this unit are turned off, and automatically tunes to that station the next time the power is turned on.

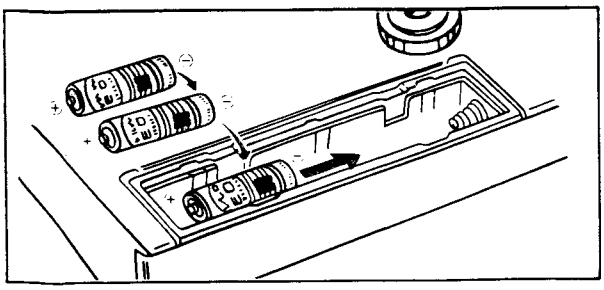
***3. Timer settings**
The timer settings are the times to which the timer has been set to turn on (or off) the radio broadcasts.

■ Type of batteries
Use three AA-size (UM-3: 1.5V) batteries for this unit.

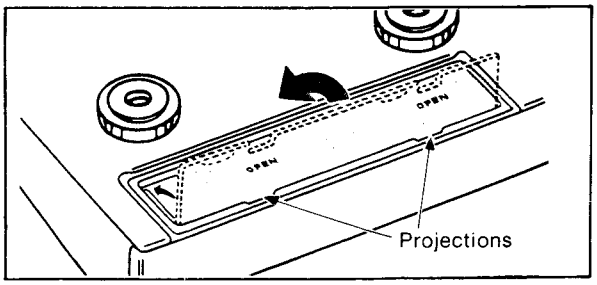
■ Insertion of batteries
1. Move the battery compartment cover in the direction of the arrow, and lift it upward to remove it.



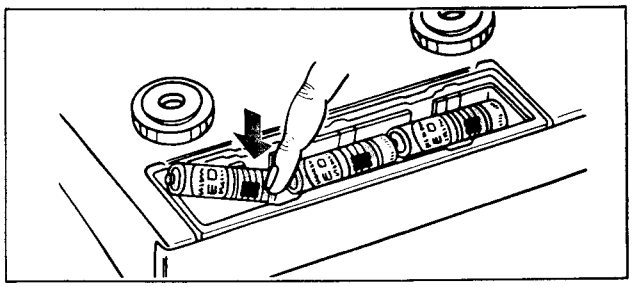
2. Insert the batteries into the battery compartment.



3. Fit the left and right projections of the battery compartment cover into their original positions, and close the cover.



■ Removal of batteries
Push the battery at the left in the direction of the arrow to remove it.



■ Battery life
The batteries will last for about 2 years under normal operating conditions.
They will last about 2 months if the power cord is disconnected from the electrical outlet.

■ Notes concerning the batteries
1. Do not mix used and unused batteries, nor batteries of different types, because to do so may result in rupture or leakage of the batteries.
2. If the unit is not to be used for a long time, the batteries should be removed.

Note:
The clock function will stop if the batteries are removed and the power cord is disconnected, and the memory may be erased. If this happens, reset the present time (page 10), the preset radio broadcast frequencies (page 11) and the timer programming (page 14) from the beginning.

IF THE BATTERIES BECOME WEAK

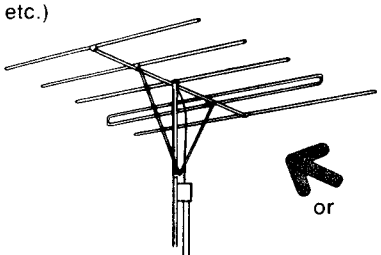
If there is an interruption of the power (such as a power failure) when the batteries are very weak or worn out:
- The letter "E" will appear in the display.
- The clock will not show the correct time.

Because all programmed functions in the memory will also be erased, first replace all of the batteries with new ones, and then program all functions once again.

STEREO SYSTEM COMPONENTS AND THEIR CONNECTIONS

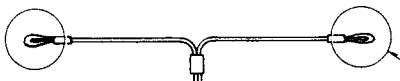
ENGLISH

FM outdoor antenna (option)
(Necessary in mountainous region, inside reinforced-concrete building, etc.)



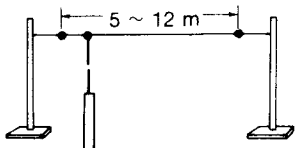
or

FM indoor antenna (included)
- Unfold to T-shape, and attach to a wall (using tacks or tape) facing in direction of best reception.
- Tacks should not contact internal antenna wire.
- For best reception sound quality, an FM outdoor antenna is recommended.
- Disconnect this antenna if an FM outdoor antenna is installed.



Tacks or tape

AM outdoor antenna (option)
(Necessary in mountainous regions, inside reinforced-concrete buildings, etc.)
Use 5 ~ 12 m (16 ~ 40 ft.) of vinyl- covered wire horizontally at the window.



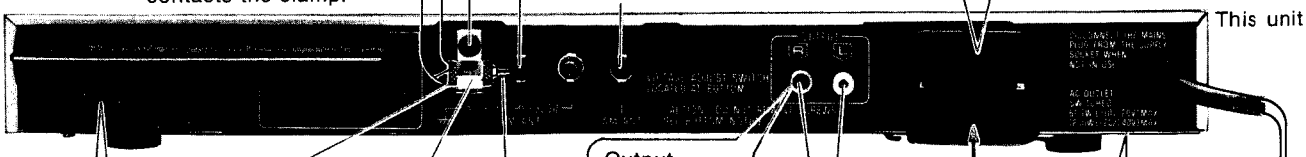
75-ohm coaxial cable (option)

Vinyl-covered wire (option)

AC outlet (SWITCHED):
By making a connection to this AC outlet and setting the power switch of the pre/main amplifier to the "ON" position, the power of the pre/main amplifier can be turned on and off by using the power switch of this unit.
The configuration of the AC outlet differs according to area.

Be sure the shield braid contacts the clamp.

This unit



Shield braid

Clamp

Center conductor

Output terminals ("OUTPUT")

(R) (L)

FM/AM allocation selector (ALLOCATION):
The steps between broadcasting stations may differ in different localities. This selector can be used to select either FM 0.2 MHz/AM 10kHz steps, or FM 0.05 MHz/AM 9kHz steps. Set to the appropriate position for your locality.
Note:
The power of this unit must be turned off before this selector is set.

Voltage selector (on the bottom panel):
Before using this unit, be sure to set to correct voltage.

Household AC outlet

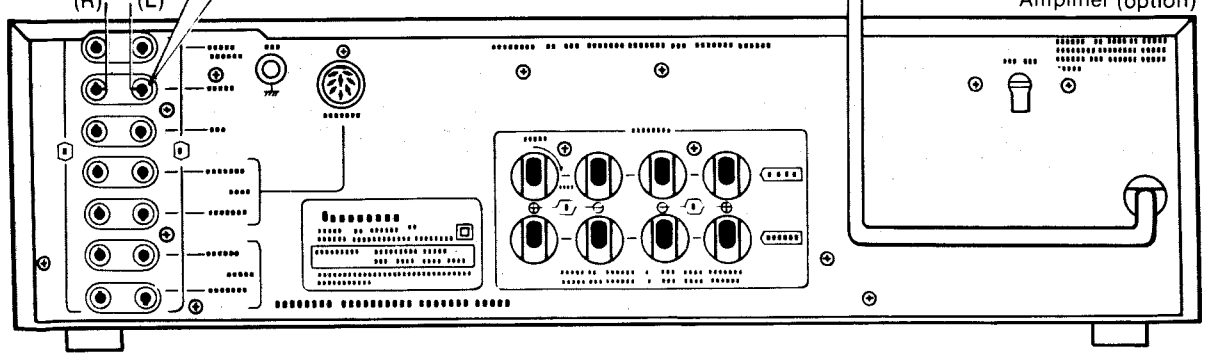
Household AC outlet:
Because this unit includes a timer, be sure to connect the power cord to a household AC outlet.
Disconnect the power cord plug from the supply socket when not in use.

Stereo pin-type cord (included)

Tuner input terminals ("TUNER")

(R) (L)

Amplifier (option)



FM ANTENNA

ENGLISH

For best reception of FM broadcasts, select an FM antenna with the best characteristics for the area in which the unit is to be used.

■ Antenna exclusively for FM reception

1. Selection

1) In areas where very strong broadcast signals are received (where the transmitting antenna can be seen), use an outside antenna with 3 ~ 5 elements.

2) In areas where weak broadcast signals are received (in mountainous regions or between tall buildings), use an outside antenna with 5 elements or more.

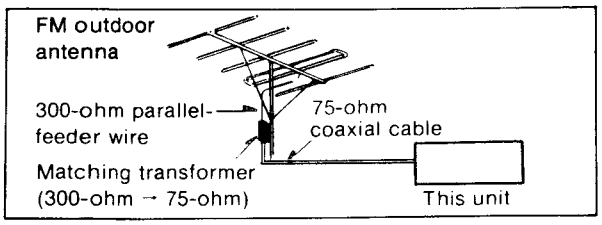
Note:
Consult with your dealer for detailed advice concerning the number of elements the antenna should have.

2. Connection wire from the antenna

To obtain the best performance of which this unit is capable, the cable used to connect this unit with the FM outdoor antenna should be 75-ohm coaxial cable which resists the effects of external noise.

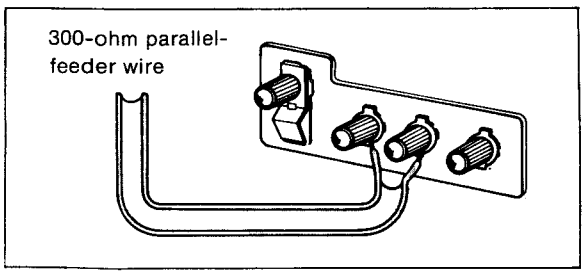
3. Impedance matching

If it is impossible to make a direct connection with 75-ohm coaxial cable from the antenna, a matching transformer should be installed, as close to the antenna itself as possible.



4. Connection

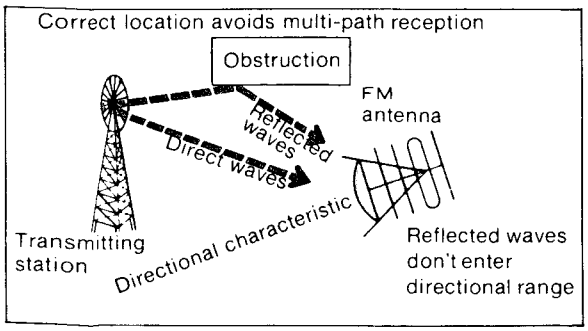
If 300-ohm parallel feeder wire is used:



5. Location of antenna

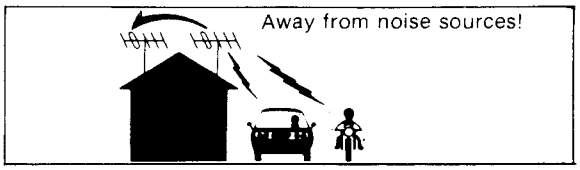
Install the antenna:

1) Where it will receive FM broadcast signals directly; not in the "shadow" of a building.

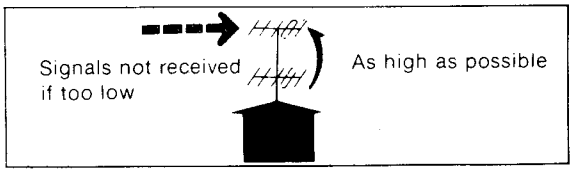


Note:
Multi-path distortion is the distortion which results from the reception of two types of signals: those reflected from nearby buildings, mountains, etc., and those received directly from the broadcasting station.

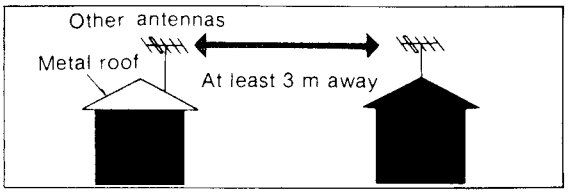
2) Away from busy roads, and away from neon signs.



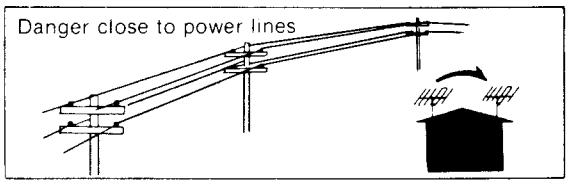
3) At least 4 meters (12 feet) above the ground (except in mountainous regions, etc.).



4) At least 3 meters (10 feet) away from a metal roof or other antennas.



5) To avoid danger, away from electric power lines.



Note:
An outdoor antenna should be installed by a competent technician only.

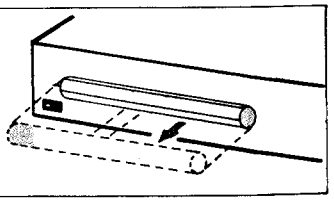
AM ANTENNA

This unit includes a highly sensitive built-in ferrite-bar antenna for AM broadcast reception. No outdoor antenna is necessary unless this unit is used in an area where signals are especially weak.

■ How to use the AM ferrite-bar antenna

Pull the AM ferrite-bar antenna outward.

To prevent noise:
Do not bring speaker connection wires or the power cord near this antenna.



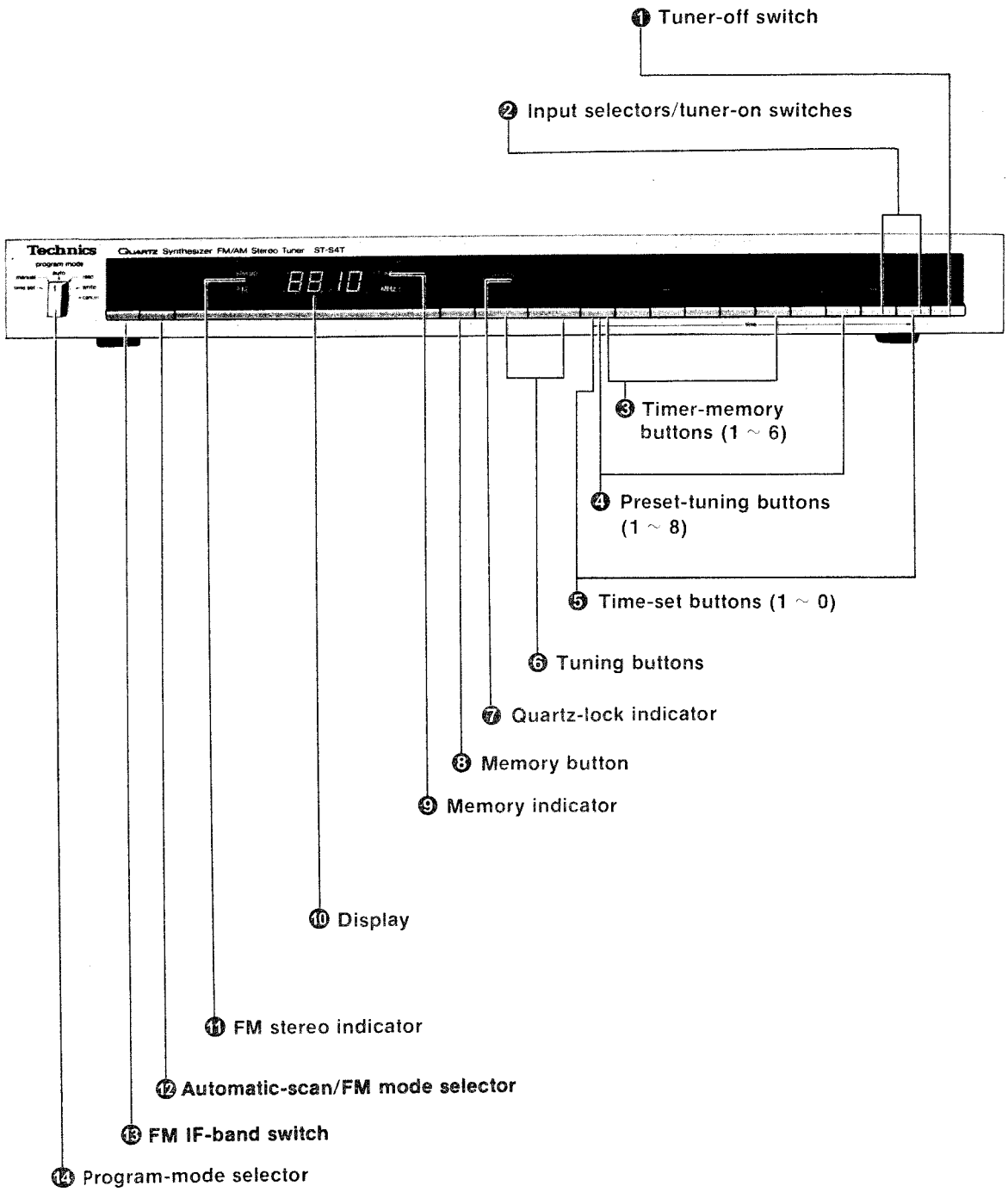
■ Connection of an outdoor antenna

If an outside AM antenna is installed (in mountainous regions or between reinforced-concrete buildings), install it in a location away from utility poles, high-voltage power lines, high buildings and busy roads.

Note:
An outdoor antenna should be installed by a competent technician only.

FRONT PANEL CONTROLS AND THEIR FUNCTIONS

Fold open this page when using this unit.
By doing so, you can easily see each switch and control mentioned in this instruction manual.



❶ Tuner-off switch (off)

This is the switch used to turn off the functions (except the clock/timer) of this unit. Press it to turn off the functions (except the clock/timer).
Note that the functions of this unit are not turned off by pressing this switch while the timer is operating.
To turn the functions off, first set the program-mode selector ⑭ to the "manual" position, and then press this switch.

Note:
To turn on the functions (except the clock/timer) of this unit, set the program-mode selector ⑭ to the "manual" position or the "auto" position, and then press one of the input selectors/tuner-on switches ② ("FM" or "AM").
In addition, the functions (except the clock/timer) can also be turned on, in order to receive an FM or AM broadcast, by simply pressing one of the preset-tuning buttons ④.

❷ Input selectors/tuner-on switches (FM/AM)

FM:
Press this button to listen to an FM radio broadcast.

AM:
Press this button to listen to an AM radio broadcast.

❸ Timer-memory buttons (1 ~ 6) (everyday 1, everyday 2, once)

These buttons are used to program the timer to turn the power to the unit on (or off) every day at the same time , or once only.

everyday 1, everyday 2:
Use one (or both) pair(s) of these buttons in order to program the timer to turn the power on (or off) at the same time(s) every day.
Because there are 2 pairs of these buttons, one pair can be used, for example, to turn on or off the "everyday 1" function so that it can be used as a morning alarm, and the other pair to turn on or off the "everyday 2" function for radio listening before going to bed at night.

once:
These two buttons can be used to program the timer to turn the unit on and off at a certain time once only, after which that time setting is cancelled from the unit's memory. This function can be conveniently used, for example, to turn the power on and off for an unattended tape recording of a radio broadcast.

Note:
The order of operation priority of these buttons is: (1) "once," (2) "everyday 2" and (3) "everyday 1". For more detailed information, refer to the section "Types of timer operation" on page 17.
Unattended recordings cannot be made with some types of tape decks. For more information concerning this point, read the operation instructions for the tape deck.

❹ Preset-tuning buttons (1 ~ 8) (FM/AM preset tuning)

These buttons (1 ~ 8) are used to preset FM and AM broadcast frequencies into the memory of this unit, and are also pressed to select the desired preset frequencies.
A total of 16 frequencies (8 FM and 8 AM) can be preset into the memory of this unit. After a frequency has been correctly preset, it is only necessary to press the corresponding button to tune to that frequency.

Note:
Refer to page 11 for detailed information concerning the method of presetting the memory of this unit.

❺ Time-set buttons (1 ~ 0) (time)

These buttons (1 ~ 0) are used to set the display to the correct present time, and are used to set the program timer to the time the unit is to be turned on and the time it is to be turned off.
Note that the display time is indicated from 0:00 to 23:59, and therefore four digits must be used to make the setting. If you want to make a setting for 7:45 A.M., therefore, the "0" button, the "7" button, the "4" button and the "5" button must be pressed in that order.

In the same way:
For 12:00 (midnight): 0 - 0 - 0 - 0
For 1:30 A.M.: 0 - 1 - 3 - 0
For 1:05 P.M.: 1 - 3 - 0 - 5

❻ Tuning buttons (tuning)

These buttons are used for tuning to the desired broadcast station. The frequency range of this unit is from 87.5 to 108 MHz (FM), and from 522 to 1611 kHz (AM). When either of these buttons is pressed once, the frequency is changed by 0.05 MHz (50 kHz) (FM) and 9 kHz (AM). If the button is pressed continuously, the frequency will continue to change.

down:
When this button is pressed, the frequency will change to a lower frequency. When the displayed frequency is the same as the transmission frequency of the broadcast station you want to hear, the quartz-lock indicator ⑦ will illuminate. Use this illumination, then, as an indication of correct tuning.

up:
When this button is pressed, the frequency will change to a higher frequency. It can be used in the same manner as the button marked "down"

❼ Quartz-lock indicator (quartz lock)

This indicator illuminates when a broadcast is received. It will not illuminate if the signal from the broadcast station is weak.

⑧ Memory button (memory)

This button is used when one of the preset-tuning buttons ④ is used to program an FM or AM broadcast frequency into the memory of this unit. When this button is pressed, the memory indicator ⑨ will illuminate, and the broadcast frequency should be programmed into the memory during the time that it is illuminated.

Note:

1. For detailed information concerning programming of the memory, refer to page 11.
2. If this button is pressed during program selection with the auto scan/FM mode selector set to the "on/auto" position, sound will cease to be produced.

⑨ Memory indicator (memory)

This indicator illuminates when the memory button ⑧ is pressed.

When presetting the frequency of an FM or AM broadcast station, press one of the preset-tuning buttons ④ during the time (about 5 seconds) that this indicator is illuminated.

⑩ Display

This display indicates the radio reception frequency and the time (although not both at the same time).

Watch this display when tuning to a radio broadcast, when setting the clock to the correct time, etc.

⑪ FM stereo indicator (stereo)

This indicator automatically illuminates when an FM stereo broadcast is being received.

Note:

It will, however, not illuminate if the automatic-scan/FM mode selector ⑫ is set to the "off/mono" position.

⑫ Automatic-scan/FM mode selector (auto scan/FM mode)

This selector can be used to select either automatic tuning or manual tuning when used in conjunction with the manual tuning buttons ⑥, and to select either stereo or monaural reception of FM broadcasts. (The FM mode selector does not operate for AM broadcasts.)

on/auto (▲—▼):

Set to this position for ordinary use. FM stereo and monaural broadcasts can be received.

When one of the tuning buttons is pushed once, the next strong station will automatically be tuned in.

off (manual)/mono (▼ —▲):

All broadcasts, stereo and monaural, will always be received monaurally.

The frequency will change by one "step" when one of the tuning buttons is pressed once, or will change continuously while a tuning button is pressed continuously.

⑬ FM IF-band switch (FM IF band)

This switch can be used to prevent interference from nearby broadcast stations.

normal (▲—▼):

The unit should under normal circumstances be used with the button in this position (released outward).

super narrow (▼—▲):

Broadcasts might be affected by interference if there are many broadcast stations or if there is a station nearby the station being received.

If so, press this switch in. At this position, distortion may increase slightly, but interference from nearby stations can be prevented.

⑭ Program-mode selector (program mode)

The program-mode selector is used when setting the display to the correct time, when programming the timer memory, and when activating the unit to perform the operations (power on and power off) programmed into the timer.

time set:

Set to this position in order to set the display to the correct time.

manual:

Set to this position for ordinary reception of radio broadcasts, disc playing, etc. which have no relation to the programming of the timer for automatic on/off operation.

auto:

Set to this position for the automatic on/off operations which have been programmed into the timer.

Note that operation is the same at either the "auto" position or the "manual" position during times which are not within the times programmed into the timer memory.

read:

Set to this position for verification of the settings programmed into the timer memory.

write:

Set to this position before programming information into the timer memory.

cancel:

Set to this position to cancel the information programmed into the timer memory.

Cautions to be taken during automatic timer operation:

1. During automatic operation, all functions exept those of operating buttons ⑫, ⑬, and ⑭ will in inoperable. However, if the program-mode selector ⑭ is set to the "manual" position, or if the auto scan/FM mode selector ⑫ is changed, the unit will return to manual operation.
2. If the program-mode selector ⑭ is set to the "read" position during automatic operation, power will cease to be supplied to the unit.
   Special care must be taken to avoid this while recording, etc.

SETTING THE DISPLAY TO THE PRESENT TIME

(Be sure to follow these steps in the numbered order.)

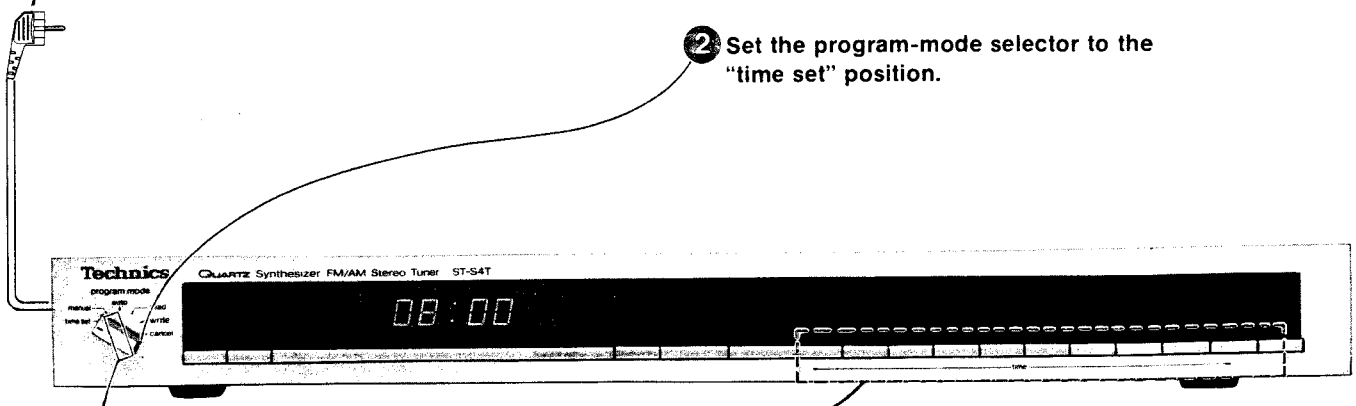
Before using this unit, be sure to set the display to the correct present time.
It must be set to the correct present time not only so that the correct present time can be displayed, but also because the correct time is necessary in order to follow the instructions given in the section "HOW TO PROGRAM THE TIMER" on page 14.

The clock used in this unit displays the time by using the 24-hour system (from 0:00 to 23:59). Follow the instructions explained below in order to prepare the clock for operation.

Note that these operations can be performed in the same way even during reception of a radio broadcast or during a disc performance.

1 Connect the power cord plug of this unit to an ordinary household AC outlet.

2 Set the program-mode selector to the "time set" position.



3 Using the time-set buttons (1~0), press the four buttons (in order) corresponding to the correct present time.

Examples:
Press 0 - 8 - 0 - 0 to set the clock to 8:00 A.M.
Press 1 - 9 - 0 - 5 to set the clock to 7:05 P.M.
To set the clock to 8:00 A.M., press the buttons in the order illustrated below.

"0" 0 :
"8" 08:
"0" 08:0
"0" 08:00

Note:
If any button is pressed in error, first complete a setting of four digits, and then make the correct setting of four digits once again from the beginning.

4 Set the program-mode selector to the "manual" position when a time signal (from radio or telephone) is heard.
(The correct time — 08:00 — will appear on the display.)
The clock will begin operation instantly when the program-mode selector is set to the "manual" position.

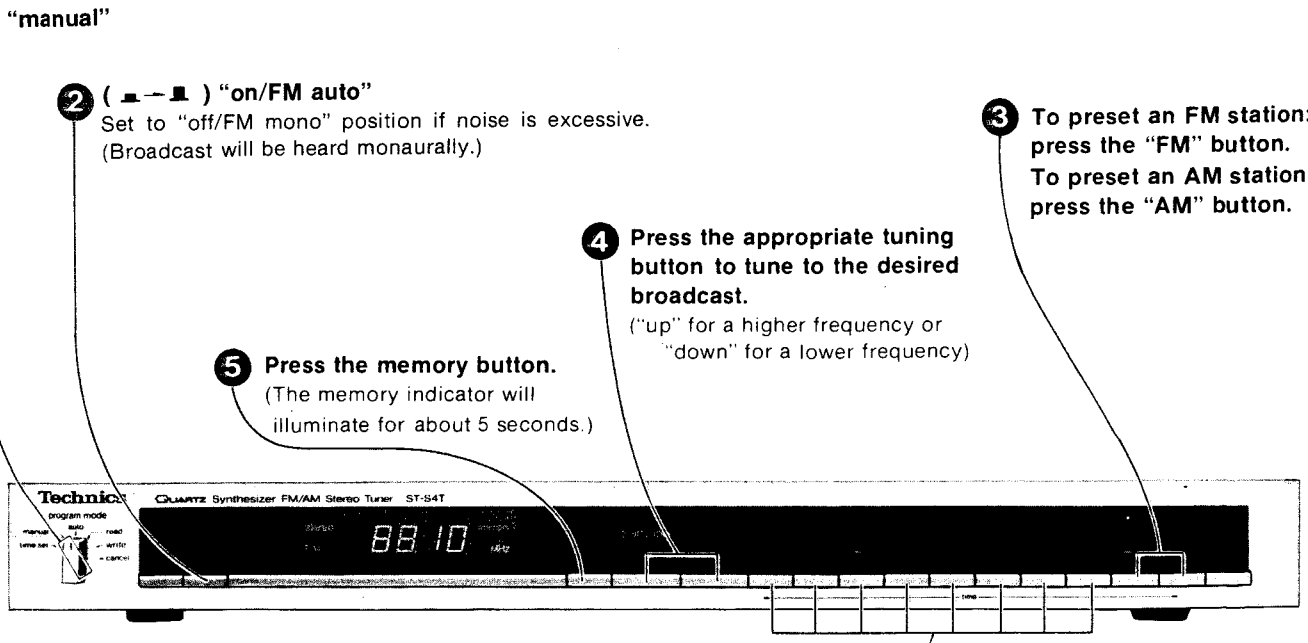
Note:
When the program-mode selector is set to the "manual" position when setting the time while listening to a radio broadcast, the frequency of the radio broadcast will appear on the display.

HOW TO PRESET RADIO BROADCAST FREQUENCIES

(Be sure to follow these steps in the numbered order.)

ENGLISH

This unit can be used to preset as many as 16 radio broadcast frequencies: 8 FM and 8 AM. After broadcast frequencies have been preset as described below, any desired station can be quickly and easily selected by simply touching one button.


1 "manual"
2 (▬—▬) "on/FM auto"
Set to "off/FM mono" position if noise is excessive.
(Broadcast will be heard monaurally.)
3 To preset an FM station: press the "FM" button.
To preset an AM station: press the "AM" button.
4 Press the appropriate tuning button to tune to the desired broadcast.
("up" for a higher frequency or "down" for a lower frequency)
5 Press the memory button.
(The memory indicator will illuminate for about 5 seconds.)
Technics
Quartz Synthesizer FM/AM Stereo Tuner ST-S4T
program mode
88 10
6 While the memory indicator is illuminated, press the preset-tuning button (1~8) which you want to use for that station.
When the button is pressed, the memory indicator illumination will stop, and the presetting is complete.
Note:
If the memory indication illumination stops before you press the button, once again repeat step ⑤ and then step ⑥.

7 It is suggested that you make a record, such as illustrated below, in order to keep a record of which station was preset for each button.

This completes the procedures for presetting radio broadcast frequencies.
The other preset-tuning buttons can be preset in the same way by following steps ③ through ⑦.

Note:
If a new frequency is preset for a button which had already been preset, the previous setting will be cancelled.

Station \ Button	CH. 1	CH. 2	CH. 3	CH. 4	CH. 5	CH. 6	CH. 7	CH. 8
FM								
AM								

■ Convenient features

FM and AM broadcasts can be quickly and easily tuned by "one-touch" operation.

With this unit, you can easily tune to any desired preset FM or AM broadcast station by simply pressing one of the preset-tuning buttons (numbered 1 ~ 8), without the necessity of selecting FM or AM each time you change stations.
It is only necessary to make a selection of FM or AM when you change from an AM station to an FM station (or vice-versa), but not when changing from an FM station to another FM station (or AM to AM).

The station heard before the function was turned off will be heard again when the function is once again turned on.

When the input selector/tuner -on switch marked "FM" or "AM" is pressed, you can hear the same FM station or AM station that was being heard before the function was turned off.

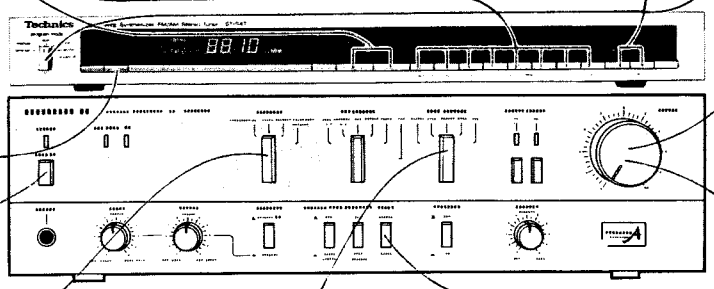
ENGLISH

OPERATION

(Follow all steps in the numbered order.)

Note:
The amplifier shown here is the Technics model.

To listen to radio broadcasts



4-2 Station selection:
• If the station has not been preset: Tune to the desired station by pressing one of the tuning buttons.

4-1 Station selection:
• If the station has been preset: Tune to the desired station by pressing the corresponding preset-tuning button.

3 "FM": for FM broadcasts
"AM": for AM broadcasts

2 "auto" or "manual"

5 "on/auto" (▲—▲)
Set to "off/mono" (▲—▲) position if noise is excessive.
(Broadcast will be heard monaurally.)

1 (↶) ("0—1")
Set volume control to low position for easier tuning.

10 (↷)
Adjust volume level.

6 "on"

8 "tuner"

9 "stereo"

7 "main", "remote" or "main and remote"
(Refer to note.)

(Steps ❻ ~ ❿ may differ depending upon the equipment being used with this unit.)

Note: Set to the "main" position to use the speaker systems connected to the "MAIN" terminals.

To listen to phono discs

6 "main", "remote" or "main and remote"
(Refer to note 1.)

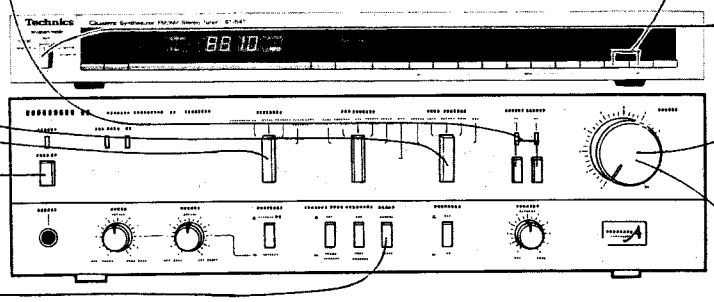
3 "FM" or "AM"

5 "phono"

4 "MM" :
for moving-magnet cartridge
"MC" :
for moving-coil cartridge

2 "auto" or "manual"

1 (↶) "0"

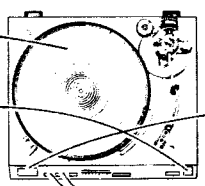


7 "on"

13 (↷)
Adjust volume level.

8 "stereo"

(Record player)



9 Phono disc:
Place disc on turntable.

12 Start/stop button:
Press to begin disc play.

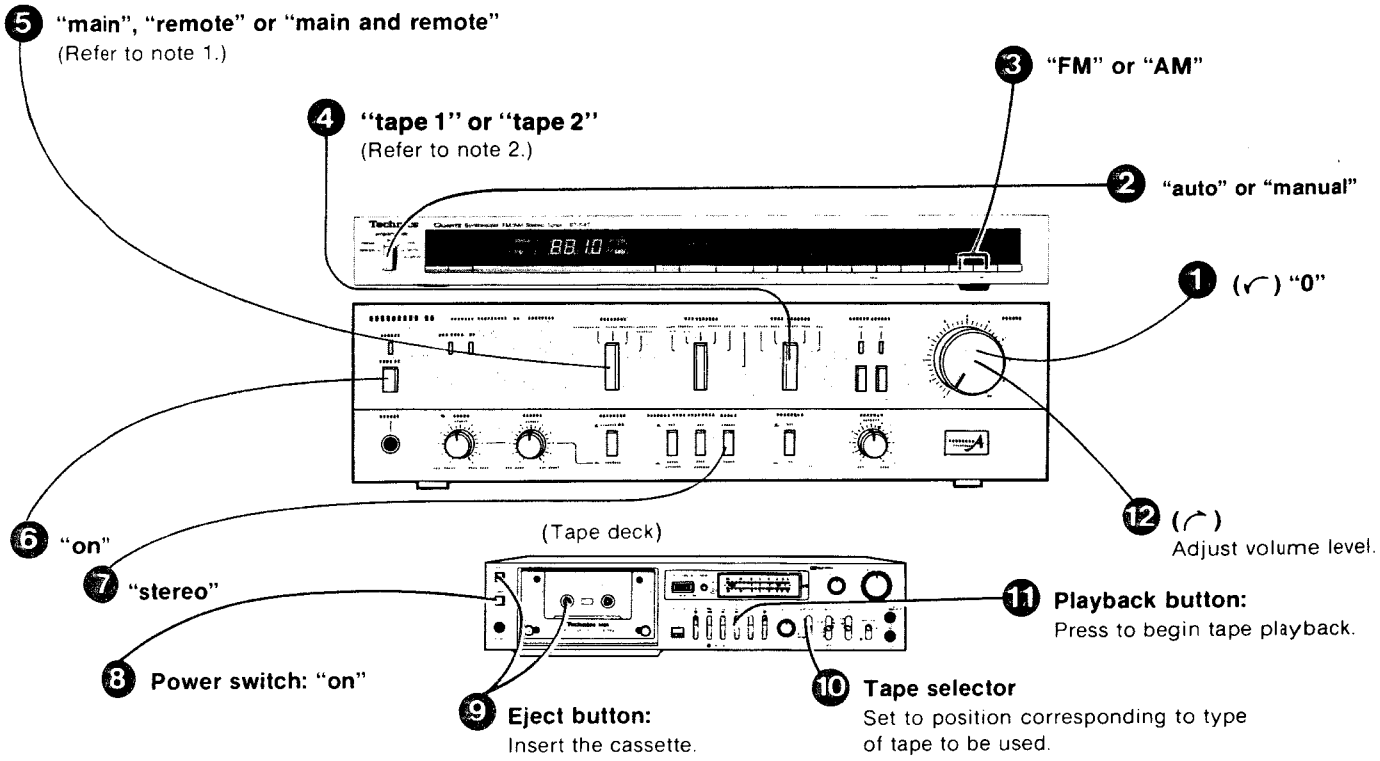
10 Power switch: "on"

11 Speed selector:
Select speed

(Steps ❹ ~ ⓭ may differ depending upon the equipment used with this unit.)

Note:
Set to the "main" position to use the speaker systems connected to the "MAIN" terminals.

To listen to tape



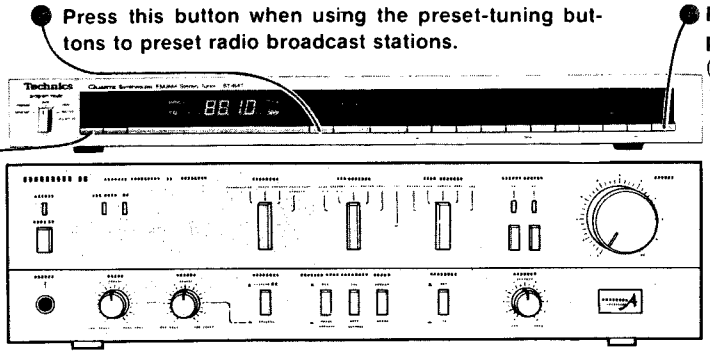
(Steps ❹ ~ ⓬ may differ depending upon the equipment being used with this unit.)

Notes:

1. Set to the "main" position to use the speaker systems connected to the "MAIN" terminals.
2. Set to the "tape 1" position to use the tape deck connected to the "TAPE 1" terminals.

Steps required for all operations

"normal" (▁▂▁)
If interference from other stations prevents reception of the desired broadcasting station, set to the "super narrow" position.


Press this button when using the preset-tuning buttons to preset radio broadcast stations.
Press this button to turn off the power (except the clock/timer).
(The power to other equipment will be turned off.)

Note

If the program-mode selector is set to the "read" position during a radio broadcast or disc performance, the power to all connected equipment will be interrupted, and no sounds will be heard from the speaker systems.

Notes regarding station selection:
If, during station selection, the tuning button ⑥ being used is released at a position at which there is no broadcasting station, or if one of the preset tuning buttons ④ for which no broadcasting station has been preset is pressed, the noise (static) emitted might damage the speakers; therefore, be sure to reduce the volume level prior to operating the buttons.

ENGLISH

HOW TO PROGRAM THE TIMER

(Follow all steps in the numbered order.)

To "program the timer" means to prepare the timer so that it will turn the power on and off at the desired times for a desired radio broadcast.
By following the steps (shown at the right) in the numbered order, therefore, it is possible to prepare the timer so that it will turn on the power of the program source at the desired time, and then to turn off its power at the desired time.

The timer can be programmed for the power-on time and the power-off time, or for only the power-off time. The timer will not operate, however, if only the power-on time is programmed.

Before programming the timer, be sure to follow the steps below.

1 Set the timer to the correct present time.
(Refer to page 10 for detailed information.)
2 Preset radio broadcast frequencies into this unit.
(Refer to page 11 for detailed information.)

■ Unattended recordings

Follow steps ❶ through ❽ of the programming procedure shown at the right. Then set the timer stand-by pushbutton of the tape recorder to the "on" position so that the tape recorder is prepared for recording.
At the programmed time, the recording will begin, and the power will then be turned off at the time to which the timer has been programmed for power turn-off.
Be sure that the power cord plug of the tape recorder is connected to one of the AC outlets of this unit.

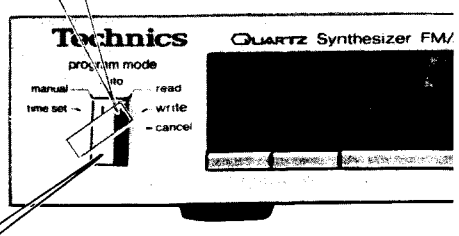
Note:
If, while the timer is being programmed, the wrong button is pressed in error, cancel the steps made until that point, and begin again from the beginning
To make a cancellation, refer to the section "Cancellation of timer programming" on page 18

Timer programming procedures

❷ **Select the desired type of timer operation.**
Select either "everyday 1", "everyday 2" or "once", and press the corresponding "on" button.
If, for example, "once" is selected, press the "on" button for "once" operation.
- To turn the power on (and off) at the same time every day, press the "on" (and "off") buttons for "everyday 1" and/or for "everyday 2" operation.
- To turn the power on (and off) for one time only, press the "on" (and "off") buttons for "once" operation.

For more detailed information, refer to the section "Types of timer operation" on page 17.
(The ▭ indication will appear on the display.)

❶ **Set to the "write" position.**
(The timer will show the present time.)



❺ **Press the preset-tuning button which corresponds to the FM or AM broadcast station that you want to hear.**
When the button is pressed:
The indicator above that button will illuminate for a moment, and the present time will be shown on the display.

❽ **Set to the "auto" position.**
The power of the desired sound source will then be turned on and off at the programmed times.
(The correct present time will be shown on the display.)

❸ Program the power turn-on time by using four digits.

- Examples: 12:05 A.M. ..... 0 - 0 - 0 - 5
  7:45 A.M. ..... 0 - 7 - 4 - 5
  7:05 P.M. ..... 1 - 9 - 0 - 5

(Press each button in the order shown above.)

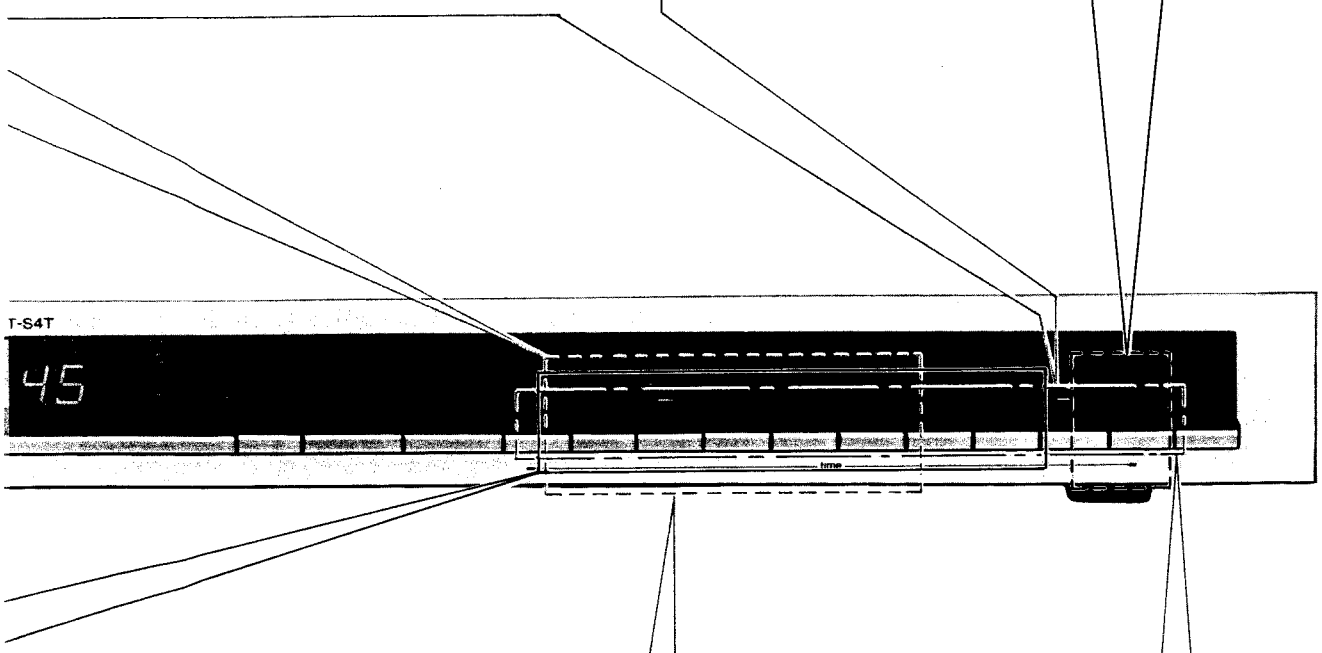
- When 7:45 A.M. is set, the display indications will be as follows:

"0" ..... 0 :
"7" ..... 07 :
"4" 07:4
"5" 07:45

❹ Select the desired program source.

- FM broadcast ..... Press the "FM" button.
- AM broadcast ..... Press the "AM" button.

If the "FM" button or the "AM" button is pressed:
The indicator above that button will illuminate, and the time that the power will be turned on will be shown on the display.



❻ Press the "off" button corresponding to the type of timer operation selected in step ❷.

If, for example, the "on" button for "once" operation was pressed in step ❷, now press the "off" button for "once" operation.
(The [:] indication will appear on the display.)

❼ Program the power turn-off time.

- The method of programming is the same as described in step ❸.
- For power turn-off at 11:45 P.M., the procedure is as follows:

"2" 2 :
"3" 23 :
"4" 23:4
"5" 23:45

After these numbers are displayed, the display will then immediately show the correct present time.

If a wrong button is pressed accidentally, finish pressing the four numbers, repeat step ❻ and then press the four correct numbers.

Actual example of timer programming

Example:
To be awakened every morning at 7:45 to an FM broadcast from the station preset by preset-tuning button #3, and to turn off the power at 8:30 A.M., follow the steps described below.

ENGLISH

1 Set to the "write" position.
(The present time will be shown on the display.)

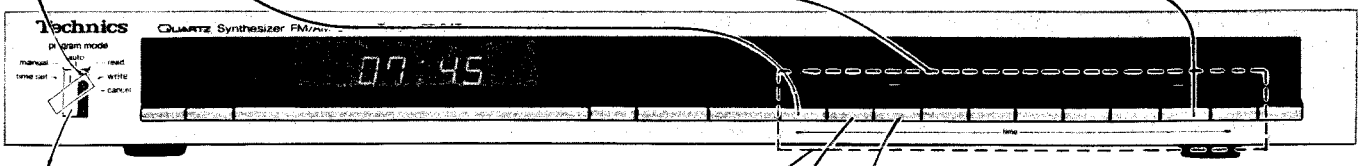
2 Press the "on" button for "everyday 1" operation.
(The [:] indication will be shown on the display.)

3 Press the 0 - 7 - 4 - 5 timer-set buttons (in that order) in order to turn on the power at 7:45 A.M.

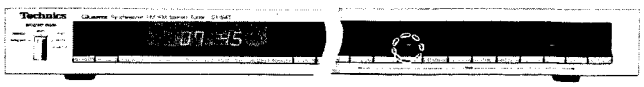
"0" [0 :]
"7" [07:]
"4" [07:4]
"5" [07:45]

4 Press the "FM" button.

The indicator above the "FM" button will illuminate, and the power-on time will be displayed.



5 Press the #3 button.
The #3 indicator will then illuminate for a moment, and the present time will be shown on the display.



6 Press the "off" button for "everyday 1" operation.
(The [:] indication will be shown on the display.)

7 Press the 0 - 8 - 3 - 0 timer-set buttons (in that order) in order to turn off the power at 8:30 A.M.

"0" [0 :]
"8" [08:]
"3" [08:3]
"0" [08:30]

After these numbers are displayed, the display will then immediately show the correct present time.

8 Set to the "auto" position.
(The correct present time will be shown on the display.)
This completes the steps necessary to turn on and off the power to hear a desired radio broadcast at the same time each day.

Types of timer operation

There are 2 types of timer operation, once only ("once") and every day, and two operations can be programmed for every day ("everyday 1" and "everyday 2"), thus giving a total of 3 timer programming possibilities.

- The "everyday 1" and "everyday 2" buttons (2 "on" buttons and 2 "off" buttons) can be used to turn the power on and off every day at the same time for two sound sources.
- The "once" buttons (1 "on" button and 1 "off" button) can be used to turn the power on and off one time for one sound source.

■ Most effective use

- The "everyday" buttons can be used, for example, to automatically turn the radio on to a desired broadcast every morning at the same time (as a wake-up alarm), and to automatically turn the radio off every day at the same time, after going to bed for example.
- The "once" buttons can be used, for example, to turn the radio on and off at the desired times for a certain program in the same afternoon, or to make an unattended recording of a certain radio program.

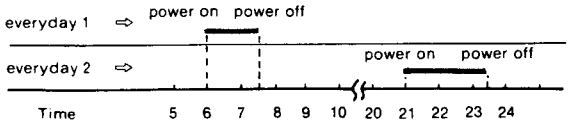
The examples given below may be used for reference as effective methods of using this feature.

Note:
The ▬▬ line indicates the time frame in which the timer has turned the power on.

1. Programming the timer for morning and/or nighttime power-on and power-off:

When the timer is programmed as shown below, the power will be turned on and off every day at the same time.

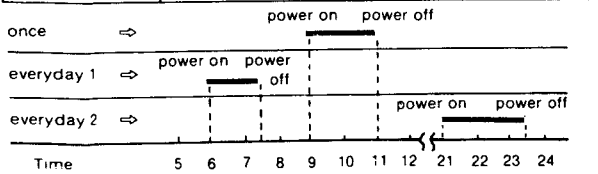
	Power-on time	Power off time
everyday 1	6:00	7:30
everyday 2	21:00	23:30



2. Programming the timer for a one-time-only power-on and power-off:

The "once" function of the timer is used in this instance. The programmed settings of the timer are cancelled after one operation when the "once" function is selected. The programmed settings are repeated day after day when the "everyday 1" or "everyday 2" function is selected.

	Power-on time	Power-off time
once	9:00	11:00
everyday 1	6:00	7:30
everyday 2	21:00	23:30



3. Priority of timer operation:

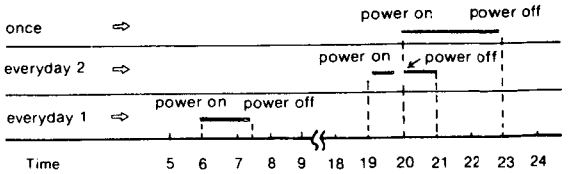
If 2 (or all 3) of the timer operations are used, and if any of these programmed times overlap each other, this unit is designed so that there is an automatic priority of operation, inasmuch as only one programmed operation can occur at a time. Be sure, therefore, that time settings are made correctly, and with the above facts in mind, because incorrect and/or overlapping settings might result in the power not being turned on at the desired time.

It is recommended that the following examples be studied carefully in order to fully understand the priority of operation.

1) **The order of priority for timer operations is: "once", "everyday 2" and "everyday 1".**

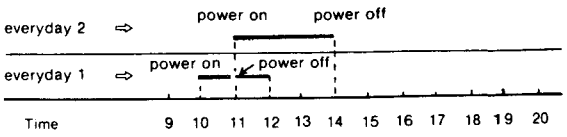
(A)If the timer is programmed as shown in the following example, the "once" operation will have priority, so that the "everyday 2" operation will change to the "once" operation at 20:00.

	Power-on time	Power-off time
once	20:00	23:00
everyday 2	19:00	21:00
everyday 1	6:00	7:30



(B)If the timer is programmed as shown in the following example, the "everyday 2" operation will have priority, so that the "everyday 1" operation will change to the "everyday 2" operation at 11:00.

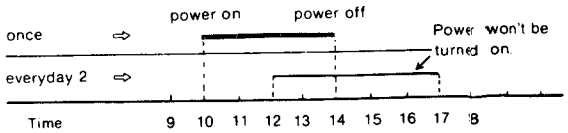
	Power-on time	Power-off time
everyday 2	11:00	14:00
everyday 1	10:00	12:00



2) **Even though the timer can be programmed to turn the power on during the time frame that a timer operation with a higher operational priority is in progress, the power will not actually be turned on.**

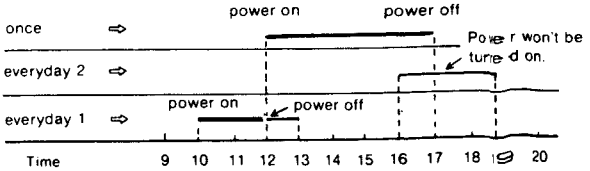
(A)If the timer is programmed as shown in the following example, the power will not be turned on for the "everyday 2" operation.

	Power-on time	Power-off time
once	10:00	14:00
everyday 2	12:00	17:00



(B)If the timer is programmed as shown in the following example, the "everyday 1" operation will change to the "once" operation at 12:00, and the power will not be turned on for the "everyday 2" operation.

	Power-on time	Power-off time
once	12:00	17:00
everyday 2	16:00	19:00
everyday 1	10:00	13:00



ENGLISH

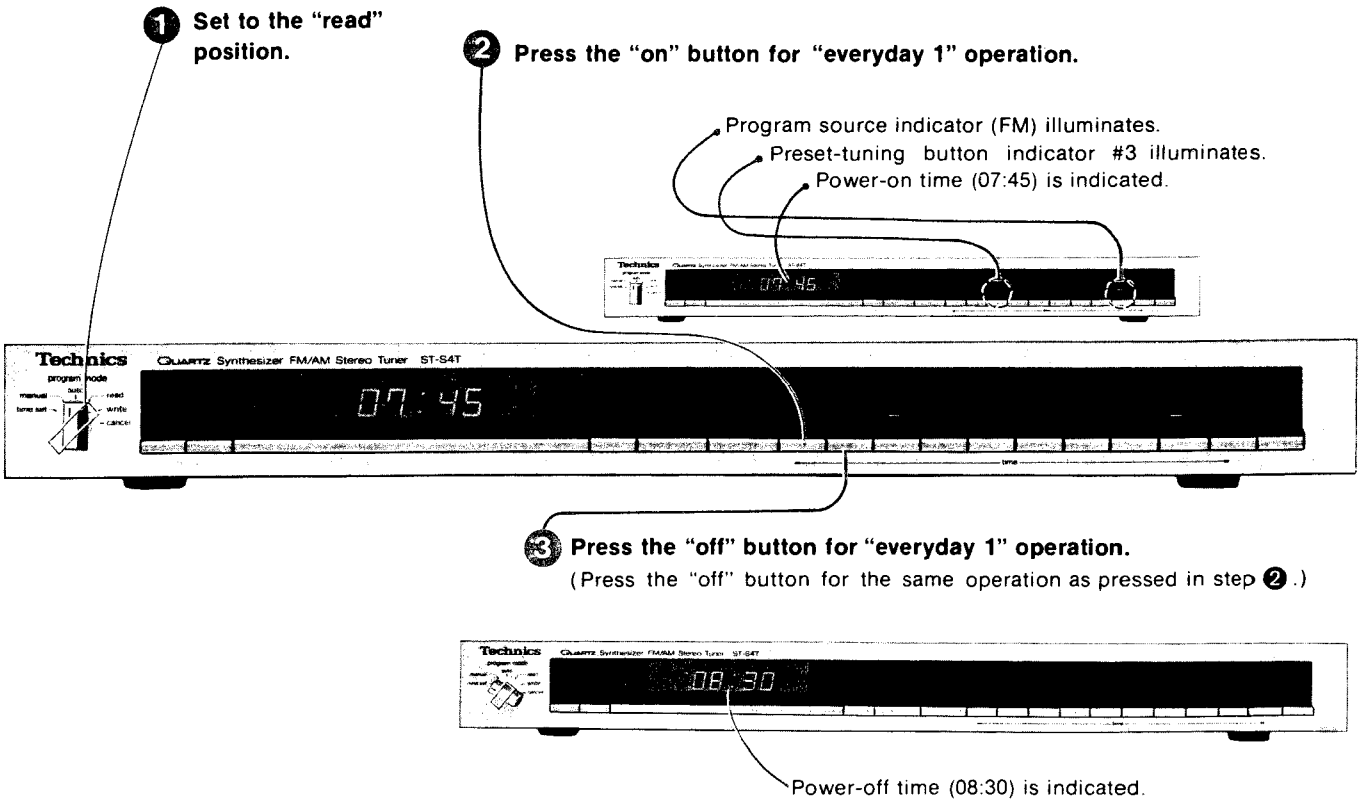
Confirmation of timer programming

The timer can be checked (to determine what has been programmed) in the following manner.

Example:

To confirm that the timer has been programmed for "everyday 1" operation to turn on the power in order to receive an FM broadcast every morning at 7:45 from the station corresponding to preset-tuning button #3, and, further, that the timer has been programmed to turn that power off at 8:30 A.M., proceed as follows, in the numbered order.

(Be sure to follow all steps in the numbered order.)


1 Set to the "read" position.
2 Press the "on" button for "everyday 1" operation.
Program source indicator (FM) illuminates.
Preset-tuning button indicator #3 illuminates.
Power-on time (07:45) is indicated.
Technics
Quartz Synthesizer FM/AM Stereo Tuner ST-S4T
07:45
3 Press the "off" button for "everyday 1" operation.
(Press the "off" button for the same operation as pressed in step 2.)
08:30
Power-off time (08:30) is indicated.

Cancellation of timer programming

Set the program-mode selector ⑭ to the "cancel" position, and then press the "on" and "off" buttons for the operation to be cancelled ("once", "everyday 1" or "everyday 2").

- **To cancel the programming for "everyday 2", for example:**
  1. Set the program-mode selector ⑭ to the "cancel" position.
  2. Press the "on" and "off" buttons for "everyday 2" operation.

  By following these steps, then, all programmed operations for "everyday 2" have been cancelled.
- **Other operations can be cancelled by following the same procedure.**

How to change timer programming

A part of the timor programming can be changed by following the procedure described below.

1. **To change the power-on time...**
   Change steps 2 through 6 on pages 14 and 15.
2. **To change the power-off time...**
   Change steps 6 and 7 on pages 14 and 15.
3. **To change the sound source...**
   Change steps 2 through 6 on pages 14 and 15.
4. **To change the timer operation...**
   Change steps 2 through 7 on pages 14 and 15.

TROUBLESHOOTING GUIDE

Before requesting service for this unit, check this table to determine if the problem can be solved as described below. If the problem still persists after making these checks, or if there are symptoms of malfunction not described in this table, it is recommended that you consult the store where this unit was purchased or your local Service Center (see list included) for further information and assistance.

	Problem	Probable cause(s)	Suggested remedy
While listening to FM broadcasts	**An unusual hissing noise is heard when listening to the broadcast in stereo, but not heard when listening monaurally.**	A slight noise may be heard because the method used for modulation of FM stereo broadcasts is different than that used for monaural broadcasts.	• Try reducing the treble sound by using the treble tone control of the amplifier. • Set the automatic-scan/FM mode selector ⑫ to the "off/mono" position. (Note that the broadcast will then be heard as monaural sound.)
	Noise is excessive in both stereo and monaural broadcasts.	Poor location and/or direction of the antenna. Transmitting station is too far away.	• Try changing the location, height and/or direction of the antenna. • If an interior antenna is being used, change to an exterior antenna. • Try using an antenna with more elements.
	Excessive noise in stereo broadcasts; sometimes no sound is emitted.	Poor location and/or direction of the antenna. Transmitting station is too far away.	• Try changing the location, height and/or direction of the antenna. • If an interior antenna is being used, change to an exterior antenna. • Try using an antenna with more elements.
	Excessive distortion in the sound of stereo broadcasts.	Nearby building or mountain. [Multi-path distortion is being caused by the mutual interference of broadcast signals received directly from the transmitting station (direct waves) and signals being reflected from nearby buildings or mountains (reflected waves).]	
	An unusual "popping" noise is heard when automobiles pass.	Such noise is called ignition noise, and occurs while the automobile engine is running.	• Relocate the antenna and the connection wires leading to it to a place farther away from where automobiles pass.
	A strange hissing noise is produced continuously or intermittently.	Caused by the "discharge phenomenon" and the "oscillation phenomenon" of electric appliances (such as fluorescent lights, TV, small series-type motors, rectification equipment, etc.).	• Try placing this unit farther away from such equipment. • Install noise-prevention equipment on this unit or on the electric appliance.
	Preset-tuning button(s) ④ doesn't tune to broadcast station.	Preset-tuning button(s) ④ isn't preset to broadcast station.	• Preset to the desired broadcast station(s). (Refer to page 11 for details.)
	Preset-tuning button(s) ④ tune to station, and frequency is displayed, but no sound is heard.	Broadcast signals are weak; automatic-scan/FM mode switch ⑫ is set to the "on/auto" (▁▂▃▅) position.	• Set the automatic-scan/FM mode switch ⑫ to the "off/mono" (▅▃▂▁) position.

TROUBLESHOOTING GUIDE
(Continued)

ENGLISH

	Problem	Probable cause(s)	Suggested remedy
While listening to AM broadcasts	**An unusual "beat" sound is heard.**	Unit is being used at the same time as the television set.	• Turn off the television set, or use this unit farther away from it.
	A low-pitched "hum" sound is heard when the broadcast is tuned.	The antenna connection wires are too close to the power cord.	• Place the antenna connection wires and the power cord farther apart.
		The power supply frequency from the power cord is modulated and heard from the speakers.	• Try reversing the connection of the power cord plug. • Install a special exterior antenna.
	A strange hissing noise is produced continuously or intermittently.	Caused by the "discharge phenomenon" and the "oscillation phenomenon" of electric appliances (such as fluorescent lights, TV, small series-type motors, rectification equipment, etc.).	• Try placing this unit farther away from such equipment. • Install noise-prevention equipment on this unit or on the electric appliance.
Problems noted at all times	**When listening to stereo sound, each sound of the various musical instruments is not heard from its correct position.**	The positive (+) and negative (−) connections of the speaker connection wires are reversed.	• Reconnect the speaker connection wires so that the positive and negative connections are correct.
	When listening to stereo sound, the left and right sounds are reversed.	The left and right connections of the speaker connection wires are reversed.	• Check the connections of the speaker connection wires and make them correctly.
		The left and right connections of the connection wires connected to other equipment are reversed.	• Check the connections of the connection wires to other equipment and make them correctly.
	A low-pitched noise ("hum" or "buzz") is heard.	The power cord or a fluorescent light, etc., is near the connection wires.	• Try separating this unit and the electric appliance as far as possible. • Reverse the connection of the power cord plug.
		The connection of the ground wire is incorrect or incomplete.	• Check to be sure that the grounding connection is correct. • If the unit is not grounded, try doing so.
	Sound is not heard from the speaker system on one side.	The speaker connection wires are disconnected.	• Check and correct the connections of the speaker connection wires.
		The balance control of the amplifier is not set to the center position.	• Set the mark on the balance control to the center position.
	The volume level for a radio broadcast is different from that for disc play.	The strength of the broadcast signal is not the same as the output from the record player.	• Use the volume control of the amplifier to adjust the volume.
	No sound is heard when one of the input selectors/tuner-on switches ② is pressed.	The program-mode selector ⑭ is set to the "read", "write" or "cancel" position.	• Set it to the "auto" position or the "manual" position.
	Sound is interrupted when the program-mode selector ⑭ is moved to the "time set" position.	The program-mode selector ⑭ was not switched correctly.	• Set the program-mode selector first to the "manual" position, and then once again to the "time set" position.
	Radio reception is satisfactory, but the input sound source cannot be changed, stations cannot be changed, and/or the power cannot be turned off.	The unit is operating under the control of the timer's programming.	• Set the program-mode selector ⑭ to the "manual" position, and then operate the unit as desired.
	Sound is interrupted when the program-mode selector ⑭ is moved to the "read" position during reception of a radio broadcast.	When the program-mode selector is set to the "read" position, no sound can be heard, because all functions are turned off.	• Operate the unit with the program-mode selector set to the "auto" position or the "manual" position.

	Problem	Probable cause(s)	Suggested remedy
Problems noted at all times	**The functions (except the clock/timer) of this unit are interrupted while listening to the radio.**	The timer has turned the power off, as programmed.	• Move the program-mode selector ⑭ to the "manual" position and continue the radio listening.
	Power is not turned on and/or off at the time(s) programmed into the timer.	The timer-memory buttons ③ were not correctly used for timer programming.	• Correctly program the timer after carefully reading the sections "How to program the timer" and "Timer programming procedures" on page 14 and pages thereafter.
	Sound is suddenly interrupted while listening to the radio, and operation remains abnormal even though various controls and buttons are manipulated.	Caused by the adverse influence (the "discharge" phenomenon and the "oscillation" phenomenon) of nearby electric equipment, etc., such as fluorescent lights, a television set, a small series motor, electric switches, rectifier, etc.	• Use this unit and such noise-producing equipment farther apart. • Provide a noise-prevention device, either in this unit or the offending equipment. **After taking the above countermeasures, the following steps should also be followed:** 1. Disconnect the power cord from the AC outlet, and then remove the batteries. 2. Insert the batteries once again (refer to page 4.), and connect the power cord to the AC outlet. **Note that the time indication, the timer programming, the preset broadcast station frequencies, and the "most recent" memory will all be cancelled, and therefore must all be programmed once again.**
	The E: indication appears on the display after a power failure or other interruption of power.	The batteries are too weak to serve as an effective alternative to AC power during a power interruption.	• Replace the batteries with new ones. Note that the time display, the preset radio broadcast stations, the timer programming, and the "most-recent" memory are all cancelled, so that it is necessary to make the time setting, etc. once again.
	Sound is interrupted during operation.	Speaker system connection wires are short-circuited. (The protection circuitry of the amplifier has functioned.)	• If sound still cannot be heard after checking the connections to each component of the system (especially from the power amplifier to the speaker systems, etc.), request service from the store where the unit was purchased or from an authorized Technics service center.

TECHNICAL SPECIFICATIONS

ENGLISH

(DIN 45 500)

■ FM TUNER SECTION

Frequency range	
	87.9~107.9 MHz (0.2 MHz step)
	87.50~108.00 MHz (0.05 MHz step)
Sensitivity	2.0 μV (IHF, usable)
S/N 30 dB	2.0 μV (300Ω), 1.0 μV (75Ω)
S/N 26 dB	1.8 μV (300Ω), 0.9 μV (75Ω)
S/N 20 dB	1.6 μV (300Ω), 0.8 μV (75Ω)
IHF 46 dB stereo quieting sensitivity	24.5 μV/75Ω
Total harmonic distortion	
MONO (normal)	0.08%
STEREO (normal)	0.1%
S/N	
MONO	70 dB (78 dB, IHF)
STEREO	65 dB (73 dB, IHF)
Frequency response	20 Hz~15 kHz, +0.5 dB~ −1.5 dB
Alternate channel selectivity	
normal ±400 kHz	60 dB
super narrow ±200 kHz	22 dB
Capture ratio	1.0 dB
Image rejection at 98 MHz	70 dB
IF rejection at 98 MHz	90 dB
Spurious response rejection at 98 MHz	90 dB
AM suppression	55 dB
Stereo separation	
1 kHz	50 dB
10 kHz	40 dB
Carrier leak	
19 kHz	−30 dB (−35 dB, IHF)
38 kHz	−45 dB (−50 dB, IHF)
Channel balance (250 Hz~6,300 Hz)	±1.0 dB
Limiting point	1.9 μV
Bandwidth	
IF amplifier	180 kHz
FM demodulator	1000 kHz
Antenna terminals	300Ω (balanced)
	75Ω (unbalanced)

■ AM TUNER SECTION

Frequency range	522 kHz~1611 kHz (9 kHz step)
	530 kHz~1620 kHz (10 kHz step)
Sensitivity (S/N 20 dB)	30 μV, 250 μV/m
Selectivity (±9 kHz)	55 dB
Image rejection at 999 kHz	45 dB
IF rejection at 999 kHz	40 dB

■ TIMER SECTION

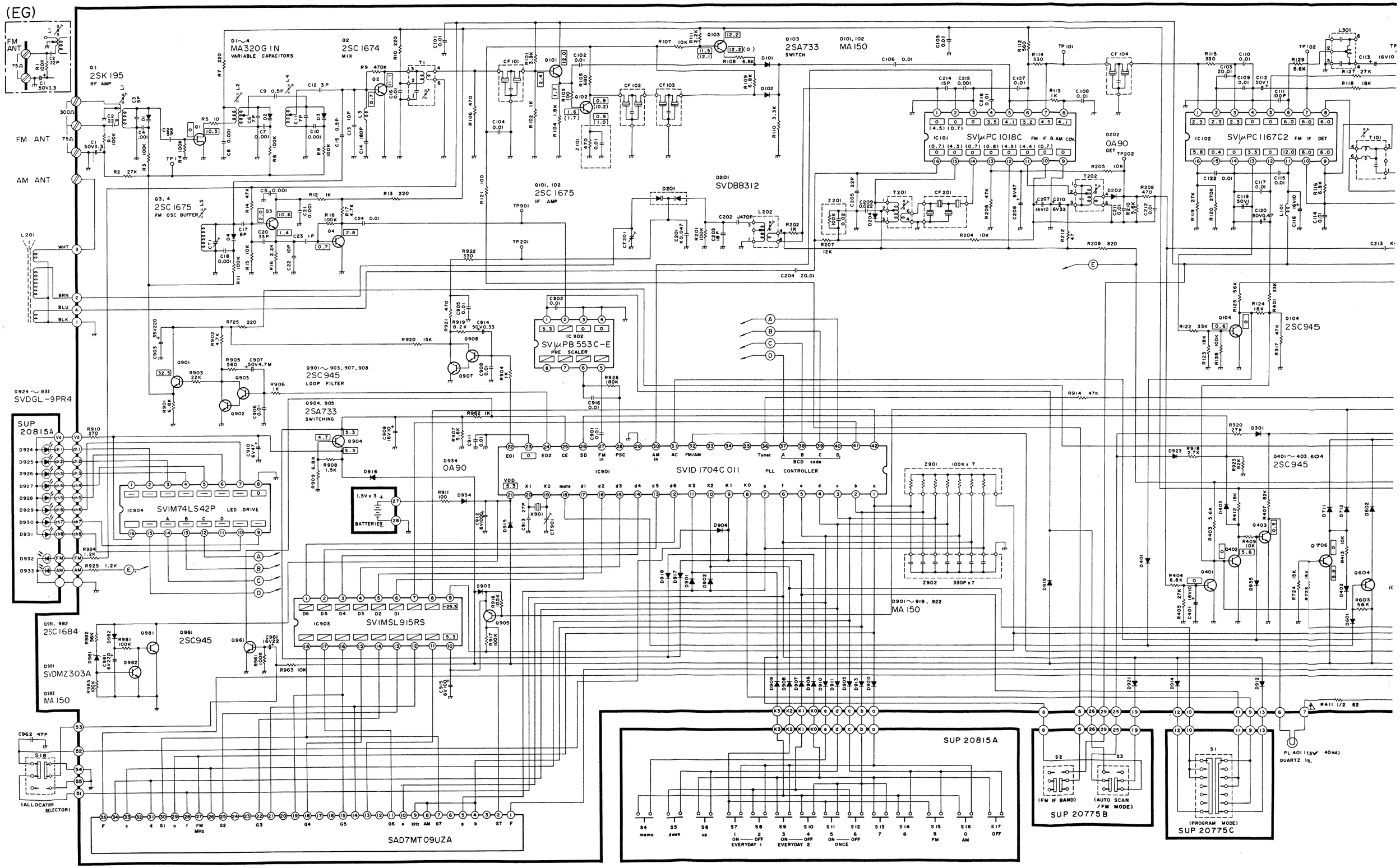
Clock	Quartz-lock type
	24-hour indication
Precision	Within ±10 sec. monthly (at 25°C)
Functions	24-hour programmable;
	everyday (2 times),
	once only (1 time)
Programmable content	On/off of program source
	(FM, AM)
	Designation of preset station
Setting intervals	1 minute~23 hours, 59 minutes
	(at 1-min. intervals)
Priority order	Once, everyday 2, everyday 1
Memory "back-up"	About 2 months (without AC power)

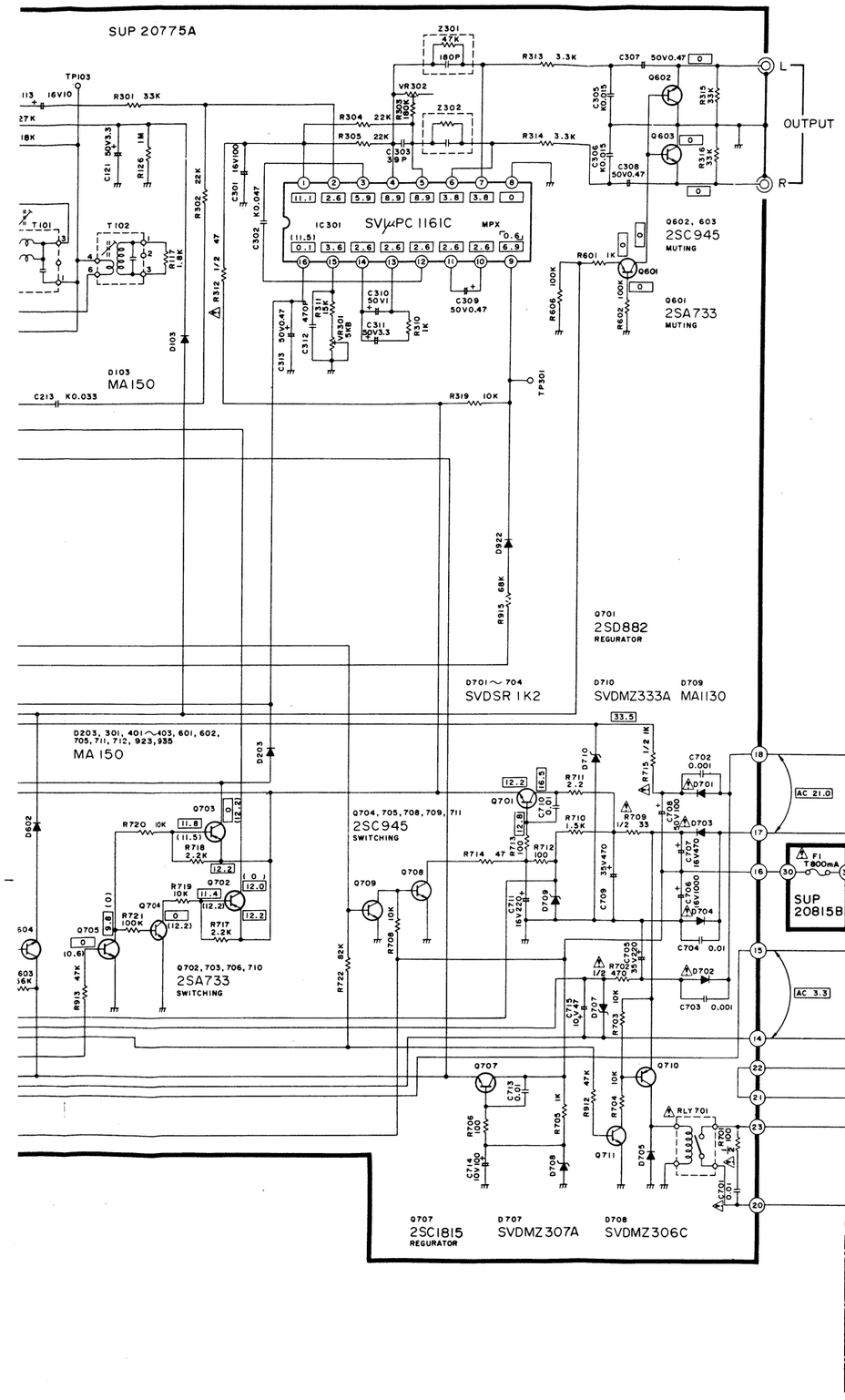
■ GENERAL

Output voltage	0.3V (0.6V, IHF)
Batteries	DC 4.5V
	(3 "AA" size batteries, Panasonic UM-3 or equivalent)
Power consumption	8W
Power supply	AC 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensions (W×H×D)	430 × 53 × 300 mm
	(16-15/16" × 2-3/32" × 11-13/16")
Weight	3.3 kg
	(7.3 lb.)

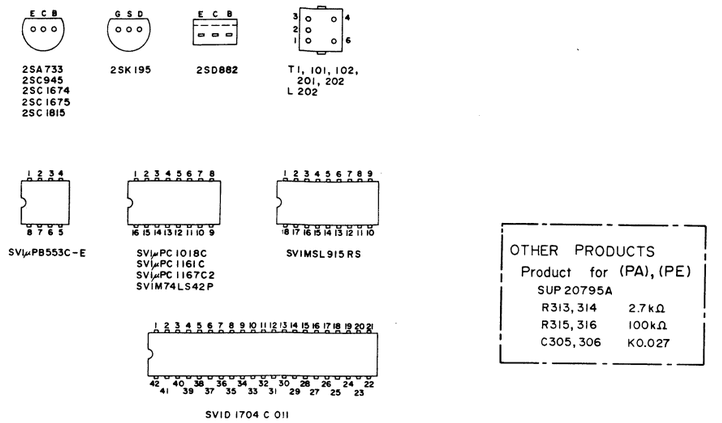
Schematic Diagram . . . Model ST-S4T

(This schematic diagram may be modified at any time with the development of new technology)





TERMINAL GUIDE (BOTTOM VIEW)



OTHER PRODUCTS	
Product for (PA), (PE)	
SUP20795A	
R313, 314	2.7kΩ
R315, 316	100kΩ
C305, 306	K0.027

NOTES

1. S1 Program mode switch in "time set" position
   time set ⟷ manual ⟷ auto ⟷ read ⟷ write ⟷ cancel
2. S2 FM IF band switch in "normal" position normal ⟷ super narrow
3. S3 Auto scan/FM mode switch in "on/auto" position on/auto ⟷ off/mono
4. S4 Memory set switch
5. S5,6 Tuning switches
6. S7~14 Preset switches
7. S15 FM mode switch
8. S16 AM mode switch
9. S17 Power off switch
10. DC voltage mesurment are taken with DC VTVM from chassis ground.
    ▭ FM ( ) AM
    ⌐ ⌙ FM stereo ( ) super narrow
11. Tolerance
    J=±5% (No mark resistors), K=±10%,
    Z=+80 −20 %, C=±0.25PF, D=±0.5PF
12. ⚠ Mark indicates safety parts
13. S18 FM/AM allocation selection switch in "FM50KHz/AM9KHz" step position. FM50KHz/AM9KHz ⟷ FM200KHz/AM10KHz
14. S19 Voltage adjustment switch in "220V" position.
    110V ⟷ 120V ⟷ 220V ⟷ 240V

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